

IN THE SPECIFICATION:

Please amend the specification as follows:

~~On Page 1, delete the 2nd paragraph (lines 6-12) and replace this paragraph with the following in accordance with 37 CFR § 1.121. A marked up version showing changes is attached.~~

B
The present invention relates generally to a production system which comprises a plurality of fabrication apparatuses arranged in series to successively process or assemble work units. More specifically, the present invention relates to such a production system wherein lamps for visibly indicating processing states are provided to the fabrication apparatuses. Still more specifically, the present invention relates to such a system wherein the fabrication data are gathered using processing states indicating lamp control signals.

~~On Page 1, delete the 4th paragraph (lines 17-23) and replace this paragraph with the following in accordance with 37 CFR § 1.121. A marked up version showing changes is attached.~~

B
As shown in Fig. 1, the production system 10 is comprised of a plurality of fabrication apparatuses 12a-12n sequentially arranged so as to successively process or assemble work units applied from corresponding upstream apparatuses. More specifically, raw work units (e.g., electronic components) are supplied to the first fabrication apparatus 12a whose outputs are then supplied to the following apparatus 12b, and these operations are repeated at the following apparatuses, and finally the finished work units are obtained at the final fabrication apparatus 12n.

~~On Page 2, delete the 4th full paragraph (lines 26-28) and replace this paragraph with the following in accordance with 37 CFR § 1.121. A marked up version showing changes is attached.~~

Br
~~Another object of the present invention is to provide a production system wherein fabrication data are gathered using lamp control signals used to control a lamp which visibly indicates different process states of the apparatus.~~

~~From line 1 of page 2 to line 9 of page 3, delete the paragraph and replace this paragraph with the following in accordance with 37 CFR § 1.121. A marked up version showing changes is attached.~~

B
~~In brief, these objects are achieved by the techniques wherein a production system comprises a plurality of fabrication apparatuses arranged in series for performing a sequential processing of work units applied to the system. All or some of the fabrication apparatuses are respectively equipped with a set of lamps each of which visually indicates fabrication states of the corresponding fabrication apparatus by energizing or de-energizing different colored lamps. A lamp control signal monitor is provided in each fabrication apparatus having the set of lamps. The lamp control signal monitor receives lamp control information used to energize or de-energize the colored lamps, and stores the data indicative of start and finish time points and time durations of energization and de-energization of the colored lamps.~~

~~On Page 4, delete the 6th and 7th paragraphs (lines 13-23) and replace these paragraphs with the following in accordance with 37 CFR § 1.121. A marked up version showing changes is attached.~~

As referred to in the opening paragraphs, it is a common practice to provide each of the fabrication apparatuses with the option (e.g., light tower) to visually indicate the states of the fabrication processes. The preferred embodiments of the present invention will be described with the option being a light tower or light towers. The light tower is typically equipped with white, red, yellow, and blue lamps so as to issue visible indications of different states of the production processes.

A principle underlying the present invention is to use lamp control signals for collecting production data from fabrication apparatuses which are a mixture of different types in terms of production date, control systems, data format types, etc. In other words, the present invention takes advantage of the fact that the lamp control signals, which are used for on-and-off operations of the lamps, are typically identical irrespective of different types or models of the fabrication apparatuses.

On Page 6, delete the 2nd full paragraph (lines 13-21) and replace this paragraph with the following in accordance with 37 CFR § 1.121. A marked up version showing changes is attached.

The lamp control signals, outputted from the controller 28, are also applied to the lamp control signal monitor 32, which comprises a parallel interface 42, a serial interface 44, a microprocessor unit (MPU) 46, and a memory 48. The lamp control signal monitor 32 is operatively coupled to the display 22, a display control switch 50, and the personal computer 52. The computer 52 serves to load suitable software to the MPU 46, and applies date-and-time information to the MPU 46, and collecting the data stored in the memory 48. Further, the computer 52 is coupled to a plurality of lamp control signal monitors of the other fabrication apparatuses (not shown in Fig. 3 but best shown in Fig. 4).

On Page 8, delete the 3rd paragraph (lines 17-28) and replace this paragraph with the following in accordance with 37 CFR § 1.121. A marked up version showing changes is attached.

Fig. 6 is a block diagram schematically showing a third embodiment of the present invention. As illustrated, the third embodiment is provided with a file server 64, the Internet server such as a mail server 66 and a www server 68. Other than this, the third embodiment is substantially identical to the second embodiment. The third embodiment features that the data, which are applied from the fabrication apparatuses 12a, 12b, and 12c and stored in the file server 62, can be accessed through the Internet. Further, the third embodiment has the advantage that when a given fabrication apparatus issues an alarm, an e-mail is automatically sent to one or more of predetermined telephones whose numbers are previously stored in the computer 52. In this case, it is necessary to previously determine an e-mail message corresponding to the alarm. It is to be noted that the file server 64 may be replaced with a memory installed within the personal computer 52.

From line 1 of page 8 to line 10 of page 9, delete the paragraph and replace this paragraph with the following in accordance with 37 CFR § 1.121. A marked up version showing changes is attached.

Referring to Fig. 7, a fourth embodiment of the present invention is schematically shown in block diagram form. According to the instant embodiment, each of the fabrication apparatuses 12a, 12b, 12c, ...supplies a conventional LAN (local area network) 70 with the data stored in the corresponding lamp control signal monitor (see Fig. 3). Since the LAN itself is well known in the art, the description thereof will be given in brief. The LAN 70 shown in Fig. 7 comprises a host computer 72, a file server 74, and a plurality of client computers 76a, 76b, ...

Although not shown in Fig. 7, a typical LAN further comprises peripherals such as printers shared by client computers 76a, 76b, ... The fourth embodiment features that the data, which are applied from the fabrication apparatuses 12a, 12b, and 12c and stored in a file server 74, can be shared by the client computers 76a, 76b, ...

IN THE ABSTRACT:

Please substitute the abstract provided on the following page for the abstract originally filed with the application.